

REMARKS

Claims 1-18 are pending.

Claims 1-18 stand rejected.

Claims 1, 5, 6, 8 and 10 have been amended

Claims 19 and 20 have been added.

Claims 1-20 are hereby submitted for review and consideration.

No new matter has been added.

In paragraph 2 of the Office Action, the Examiner has acknowledged the Applicant's previous arguments regarding claims 1-18 under 35 U.S.C. § 112 second paragraph.

In paragraph 3 of the Office Action, the Examiner has rejected claims 1, 5-6, 8-10 and 12 under 35 U.S.C. § 112, second paragraph because of improper Markush language, and because claim 1 contains a duplicate word and because of the terms substantially in claims 6 and 8. In response claims 1 and 5 have been amended accordingly to include the suggested Markush language and claims 6 and 8 have had the "preferably" clauses removed and re-introduced properly as dependent claims 19 and 20 respectively. As such, Applicant respectfully requests that these rejections be withdrawn.

In paragraph 7 of the Office Action, the Examiner has rejected claim 1 under 35 U.S.C. § 112 for containing new matter. Applicant disagrees and notes that the specification makes clear that the phosphorus group is a functional group of the polymer. However, Applicant has amended claim 1 to read that the phosphorus group is

“chemically bonded” to the polymer as recited directly in paragraph [0011] of the corresponding publication U.S. Patent Publication No. 2004/0151906. As such, Applicant respectfully requests that this rejection be withdrawn.

In paragraph 9 of the Office Action, the Examiner has rejected claims 1-18 under 35 U.S.C. § 103 (a) as being obvious over Hasegawa et al. (U.S. Patent No. 6,755,995) in view of Hall (U.S. Patent No. 6,025,422), further in view of Ogawa et al. (U.S. Patent No. 4,417,018). This rejection is similar to the previous Office Action rejection only the Examiner recites the Ogawa reference in support of the element of the phosphorus group being a functional group of (or chemically bonded to) the polymer.

Applicant respectfully disagrees with the Examiner’s contention and submits the following remarks in response.

Applicant begins by noting that the present invention as claimed in independent claim 1 is directed to a flame-retardant cable having a transmission element a flammable element and a flame-retardant coating layer of cross-linkable resin surrounding the flammable element. The flame-retardant layer includes a polymer obtained from a polymerizable liquid composition. The polymerizable liquid composition contains at least a precursor for the polymer, where the precursor including functional groups selected from any one of acrylates, methacrylates, epoxies, vinyl ethers, allyl ethers, and oxetanes. The polymerizable liquid composition also includes at least one phosphorous group *such that the phosphorus group is chemically bonded to the polymer.*

As noted in the previous Amendment, the inclusion of the phosphorus group in the polymerizable liquid composition allows the phosphorus to be incorporated as a functional group of the polymer. This provides added stability to the phosphorus in the flame retardant material.

In forming the rejection, the Examiner notes that neither Hasegawa nor Hall teach phosphorus functional groups that are added to the composition, but that Ogawa teaches such functional groups and that it would be obvious to modify Hasegawa by the teachings of Ogawa to obtain the present invention as claimed.

This is incorrect for at least two reasons. First, Ogawa does not teach phosphorus groups that are chemically bonded to the polymer (functional groups of the polymer), but rather teaches phosphorus groups that are simply added (non-chemically) into the mixture along with other fillers. Secondly, even if Ogawa did teach phosphorus groups chemically bonded to the polymer, then the Modification of Hasegawa by such a teaching would not be obvious.

Applicant notes that in forming the rejection, the Examiner states that Ogawa “teaches a flame retardant composition...that includes phosphorus functional groups that are added to the composition.” The Examiner then broadly cites to columns 9 and 10 of Ogawa for support. However, this portion of Ogawa *does not* teach the phosphorus group being *chemically bonded to the polymer (as a functional group of the polymer)*, rather it simply teaches *the mixing* of the phosphorus into the composition.

Ogawa is principally concerned with achieving a specific ratio of polymer (polyesters) to halogen to antimony trioxide ratio. See columns 1 -8. Later from the bottom half of column 8 through column 10, Ogawa goes on to discuss some additional fillers that are simply mixed in with the composition such as glass fillers, phosphorus, coloring agents etc... The result of such additions is the simple dispersion of these particles in the polymer, but would not produce any chemical bonding.

As such, even if Ogawa is combined with Hasegawa and Hall, the resulting composition still does not teach or suggest all of the elements of the present invention as claimed. For example, the resulting composition would still not teach or suggest that the

phosphorus group is chemically bonded to the polymer.

For this reason alone, Applicant respectfully requests that the rejection of claim 1, and the rejection of the claims that depend therefrom be withdrawn.

In the event the Examiner disagrees and still contends that Ogawa teaches chemically bonded phosphorus, it is not obvious to modify the polymer from Hasegawa to include a chemically bonded phosphorus group.

Hasegawa teaches a flame retardant compound that includes very specific ratio of polymer to inorganic compound to filler, where the resultant composition maintains certain physical properties such as a specific gravity of 1.14 or less and an oxygen index of 24 or more (See column 2, lines 12-22). These physical properties achieved using a specific ratio of combination between polymers, inorganic fillers, and flame retardant additives (one of which is NON-chemcially bound red phosphorus).

However, to modify the structure of the polymer to chemically bond phosphorus to the polymer is not an obvious modification. In fact, such a modification may throw off some of the carefully set ratios, thereby changing the oxygen index or specific gravity of the composition beyond the intended scope. Absent a specific reason for doing so, it is not obvious to simply alter the structure of the polymer in Hasegawa to add flame retardant chemically bonded phosphorus groups, particularly in view of the fact that Hasegawa already includes non-chemically bonded flame retardant additives.

As such, for this reason alone, even if the Ogawa reference or some other reference did show a polymer with a chemically bonded phosphorus group, the modification of Hasegawa to include such a teaching is not obvious. Applicant respectfully requests that the rejection of claim 1, and the rejection of the claims that depend therefrom be withdrawn.

In view of the forgoing, Applicant respectfully submits that the present invention

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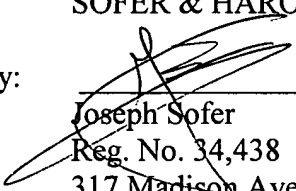
as claimed is now in condition for allowance, the earliest possible notice of which is earnestly solicited. If the Examiner feels that a telephone interview would advance the prosecution of this application she is invited to contact the undersigned at the number listed below.

Respectfully submitted

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Dated: 6/12/06

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